Newsroom

January 24, 2013

Georgia Southern University

Georgia Southern's Herty Advanced Materials Development Center takes University research to the next level

JANUARY 24, 2013

In a move impacting the future of research and economic development in the state of Georgia for generations to come, Governor Nathan Deal signed legislation transferring management of the Herty Advanced Materials Development Center in Savannah, Ga., to Georgia Southern University. This merger blends the unique large scale development and manufacturing capabilities of Herty and the scientific expertise of Georgia Southern faculty and students.

According to Georgia Southern President Brooks Keel, Ph.D., this strategic alignment is a win-win situation for all involved. "This new partnership has generated the potential for the University to engage in global research opportunities," he said, "and provides an outstanding opportunity for us to combine Georgia Southern's broad base of engineering and scientific expertise with Herty's leadership and reputation in advanced materials innovation."

Founded in 1938, Herty's clients include global corporations, as well as numerous Fortune 500 companies, focused in a wide range of areas including: transportation, pulp and paper, building materials, energy, environmental and bio-products industries. The facility is one of the few organizations in the world offering lab and pilot scale development as well as production-line capabilities.

Herty's project managers and operators have produced products from literally hundreds of varieties of raw materials and fiber blends. Georgia Southern now has the opportunity to integrate faculty research interests with Herty's industrial development capabilities. "Herty allows the University

to accelerate its research interests in the material sciences and provides an avenue for applied research and development that most universities without dedicated research parks can only dream of," said Charles Patterson, Ph.D., vice president for research and economic development and dean of the Jack N. Averitt College of Graduate Studies.

"We've got all the building blocks for a strong industry research and development presence – now the challenge is to leverage the opportunity," said Don McLemore, Ph.D., director for the Office of Industry Relations and Economic Development. McLemore knows Herty well, having served as the Center's chief operating officer from 2005-2011, and he is currently linking industrial research projects and economic development opportunities with the University and Herty.

These "building blocks" include the talents of more than 100 Ph.D. scientists and engineers said McLemore, and he suggested that the University also has the opportunity to expand its base of scientific expertise by hiring additional researchers to teach in various colleges.

"The partnership provides a powerful academic and industrial structure that will attract companies to work with Herty," said Dr. Alexander Koukoulas, CEO and president of Herty, about the benefits of the merger that is blending research and industry. "Herty will allow Georgia Southern's faculty and students to see their earlystage research translated into a scale that is commercially relevant," he explained about the collaboration. "Herty de-risks the development process, which allows investment in University R&D to have greater economic impact." One example he cited is work on polymers that can be used in unique non-woven structures, which is a core strength at Herty. Another is the analytical chemistry research and material characterization methods that can support process and product development efforts at Herty. Koukoulas' broad experience base includes working on many major process technologies in the pulp and paper industry. He served as the chief research scientist and directed corporate R&D for International Paper and most recently served as the managing director of ANL Consultants, LLC, a private consulting firm supporting the pulp and paper, biomaterials and bioenergy industries. As a holder of more than 20 international patents, he is passionate about bringing new research ideas to the market. He also believes that the vast forestry resources of the state of Georgia hold special potential for new product development.

Without a doubt, Keel said the merger advances Georgia Southern's research mission and elevates the University's established research programs. "This is a real opportunity for Georgia Southern to fill a gap. Students stand to benefit through potential internships and handson learning experiences with Herty's clients," he added.

THE HISTORY OF HERTY

"In many ways, this merger reunites Georgia Southern with our history," said Keel, mentioning Dr. Charles Herty's groundbreaking experiments in a pine forest in 1901, the future site of the First District A&M School.

During Gov. Deal's statewide tour promoting economic development, he signed Georgia Senate Bill 396 into law on the steps of the Marvin Pittman Administration Building on Sweetheart Circle. This historic and meaningful event represented a homecoming of sorts for Herty, the chemist and revolutionary researcher who saved the turpentine and rosin chemical industry more than a century earlier in the northeast corner of the Circle. Herty's pioneering invention of a simple cup-and-gutter system – at the site later renamed Herty Pines — collected resin without harming pine trees, and ultimately saved the nation's naval stores.

In the 1930s, Herty made another research discovery with southern pines, discovering that newsprint and paper could be made from the fast-growing trees. Due to those findings, Herty is largely considered the founding father of the pulp and paper industry, and the tree farming industry. In 1938, the Georgia legislature recognized Herty for his significant research contributions by establishing the Herty Foundation (later renamed the Herty Advanced Materials Development Center).

INNOVATION AND IMPACT

Herty's areas of expertise have expanded from early work in tree-based natural fibers to include process and product development, technical analysis, economic analysis and laboratory testing for projects and products employing a broad spectrum of natural and synthetic materials. One example is its production of pellets from pine trees. Herty has aided several companies in the development of processes for drying, resizing, blending, the specialized treatment and pelletizing of pine and other forms of biomass. "Georgia is a leading producer of pellets. This nascent industry will continue to grow and we have tremendous opportunity to support its development while conducting research that will position it for expansion into products of higher value," said Koukoulas.

"Herty's aim is to accelerate the commercialization of new concepts, new products and new businesses," said McLemore, and the Center has conducted development for a variety of different products. One project, in collaboration with the U.S. Mint, explored the capabilities of printing currency with Braille for the visually impaired. Herty also worked with the company P2i to test a new plasma coating technology, which is used on products ranging from running shoes and clothing to hearing aids. "If a product – such as running shoes — is treated with this ultra-thin polymer layer, it doesn't absorb liquids," said McLemore, about the liquid repellant nano-technology. Companies such as Hi-Tec, Adidas Golf, Nike, Magnum and Ecco have used this technology, as well as the global hearing aid market.

Herty's longevity, expertise and knowledge in the field of pilot testing have made it the natural choice for companies looking for ways to improve efficiency and give them an advantage in the marketplace. "We have a unique skillset built around process and product development, and the infrastructure to support pilot projects before the product is prepared for full commercial scale-up," said Koukoulas about Herty's capabilities.

Companies eager to introduce a new product to the market utilize Herty's equipment and testing capabilities before a launch. "We work out key engineering and product specifications so a company will know with certainty that a process or product is going to work before spending millions of dollars to construct a dedicated facility. We are delivering solutions to help companies become more competitive while helping them to expand their business within the state," said Koukoulas. "There is no better place to do business than in the state of Georgia, at Herty and with Georgia Southern, and we intend to make sure that companies know this and look at us as a partner for growth."

PARTNERSHIP POTENTIAL

Georgia Southern's Herty Advanced Materials Development Center has opened the door for potential partnerships, especially with the significant manufacturing cluster growing between Statesboro and the coast. "These companies need engineering skills, manufacturing skills and materials knowledge – all which we can provide," said McLemore. Another essential component of the partnership is the promise of economic development. Bringing Herty under the umbrella of Georgia Southern will help the University become a driving force in accelerating the region's future economic development, said Keel. "Herty's main focus is spearheading economic development within the state," said Koukoulas, about their goal of encouraging companies to relocate to Georgia.

Patterson offered an example of Herty's step-by-step process. "If a company is interested in a compound that can be extracted from pine trees, Herty can advance that process in the lab to demonstrate proof-of-concept as well as bring the process to the commercial (manufacturing) scale," he said. "In addition, working hand-in-hand with our economic development professionals in the region and the state, we want to attract industries to the region that can benefit from our rich abundance of biomass," he added.

THE FUTURE

According to Koukoulas, new technologies are emerging in the forest products industry, which translates into further expansion for Herty and Georgia Southern. "We are looking at the next generation of technologies – specifically nanocellulose and new uses for lignin — which can impart unique and enhanced material properties," he described about the basic building blocks of woody biomass. "Nanocellulose has great potential for a variety of commercial applications including the pharmaceutical industry, in the plastics industry to impart strength and enhanced barrier properties," he added. Additionally, nanocellulose fibers can be used to produce high performance plastics for the automotive and aerospace industries. Lignin is also finding novel uses, especially in the development of low-cost carbon fiber. "The future holds unlimited possibilities for these renewable materials," said Koukoulas.

Other potential opportunities for Herty and Georgia Southern include the development of biomass to fuels. "Second generation fuels and bio-based chemicals from lignocellulosic materials is an emerging industry," said Koukoulas. "Herty's intention is to support this industry by expanding on our process capabilities. In doing so, we can develop new uses for our biomass resources such as transportation fuels, renewable plastics and chemical feedstocks – all from renewable and sustainable raw material sources such as wood and agricultural residues," he said. Students in Georgia Southern's Renewable Energy Lab already have experience making biofuels created from peanuts, poultry fat and cottonseed oil.

Keel is excited about what the future holds for the Georgia Southern Herty Advanced Materials Development Center, as the University continues toward its goal of achieving national comprehensive research institution status.

"Now that these two entities have come together, Georgia Southern has the opportunity to be at the center of all of the development in our state," he said. "There are so many distinct advantages — not only can companies utilize the piloting capabilities of Herty, but also benefit from our faculty researchers. Georgia Southern is aligned with a facility that can grow ideas."

For more information, visit *www.herty.com*.

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Ticket Information for Speech by Former President Jimmy Carter and First Lady Rosalynn Carter

JANUARY 24, 2013

Georgia Southern University will begin ticket distribution next week to students, faculty, staff and community members for the appearance by the 39th President of the United States, Jimmy Carter, and former first lady Rosalynn Carter at Hanner Fieldhouse on Feb. 12 at 7 p.m.

The Carters' appearance in the Leadership Lecture Series marks the first time the former president and first lady have spoken at Georgia Southern. Tickets are free and available on a first come, first served basis. **Tickets will not be available at the door the night of the event.**

Student Ticket Distribution (Jan. 28 – Feb 6)

- Students must present their Eagle ID at the time of ticket pick-up and will be limited to one ticket per person.
- Tickets are available from 8 a.m. – 5 p.m. daily in the Office of Student Leadership and Civic Engagement, Russell Union, Room 1056.

Faculty and Staff Ticket Distribution (Jan. 31 – Feb 6)

- Faculty and staff must present their Eagle ID at the time of pick-up and will be limited to two tickets per person.
- Tickets are available from 8 a.m. – 5 p.m. daily in the Office of Student Leadership and Civic Engagement, Russell Union, Room 1056.

Community Ticket Distribution (Feb. 5-6)

- Community members will be limited to two tickets per person.
- Tickets will be available from 11 a.m. – 6 p.m. daily at the Hanner Fieldhouse box office. Tickets are also available during regular business hours at the Georgia Southern City Campus, 58 E. Main St., Statesboro and the Coastal Georgia Center, 305 Fahm Street in Savannah.

Please plan to arrive early and note that doors will close at 6:45 p.m. No one will be admitted to the event after that time. No photographs or recording of the event will be allowed.

Georgia Southern University, a Carnegie Doctoral/Research University founded in 1906, offers more than 120 degree programs serving more than 20,500 students. Through eight colleges, the University offers bachelor's, master's and doctoral degree programs built on more than a century of academic achievement. Georgia Southern is recognized for its student-centered approach to education. Visit: *www.georgiasouthern.edu*.

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Congratulations to #GeorgiaSouthern @GSCOSM alumnus Nick Wiley ('83) who was recently named the chief conservation officer of @DucksUnlimited ! ow.ly/BhVW30hkDJR

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